

## ADJUSTABLE VALVE ROD AND PULL TUBE GUIDE FOR DOWNHOLE PUMPS

### CLAIMS

1. A guide for reciprocating an extension member of a plunger in a downhole pump, comprising:
  - a) a first segment having a first end structured and arranged to couple to a barrel of the pump;
  - b) a second segment having a bushing stop at a second end;
  - c) the first and second segments coupled together such that the distance between the first and second ends can be adjusted, the first and second segments having a passage therethrough for receiving the extension member.
2. The guide of claim 1 wherein the first and second segments are coupled together by threads, wherein the first segment has first threads and the second segment has second threads.
3. The guide of claim 2 further comprising:
  - a) a stop nut located on one of the first or second threads;
  - b) a stop surface located on the other of the first or second segments for cooperating with the stop nut.

4. The guide of claim 1 wherein the first segment has openings from the passage to an outside diameter.
5. The guide of claim 1 wherein:
  - a) the first end comprises third threads for coupling to the pump barrel;
  - b) the second end comprises a fishing neck;
  - c) the first segment has first threads and the second segment has second threads, the first and second segments coupled to each other by the first and second threads;
  - d) a stop nut located on one of the first or second threads;
  - e) a stop surface located on the other of the first or second segments, for cooperating with the stop nut.
6. A downhole pump, comprising:
  - a) a barrel having a first end and a second end, with a standing valve located near the second end and a guide coupled to the first end, the guide having a free end;
  - b) a plunger located in the barrel and structured and arranged to reciprocate therein, the plunger having an extension member that is received by the guide;
  - c) a bushing located on the extension member and structured and arranged to contact the free end of the guide;
  - d) the free end of the guide being adjustable in distance relative to the first end of the barrel.

7. The pump of claim 6 wherein the free end of the guide is coupled with the barrel by a threaded fitting and a stop nut.
8. A method of assembling a pump, comprising the steps of:
  - a) inserting a plunger and an extension member of the plunger into a barrel, the plunger forming a compression chamber inside of the barrel, the extension member extending out of the barrel;
  - b) coupling a guide onto the end of the barrel such that the extension member passes through the guide, the guide having a free end, the free end of the guide being spaced from the barrel end by a distance;
  - c) coupling a bushing to the extension member, the bushing being structured and arranged to contact the free end of the guide;
  - d) adjusting the distance of the free end of the guide so as to adjust the size of the compression chamber.
9. The method of claim 8 wherein the step of adjusting the distance of the free end of the guide further comprises the step of retaining the position of the free end of the guide.